

THAT WHICH IS CLAIMED IS:

1. An integrated filtration and detection device for collecting and detecting the growth of microorganisms in a specimen, said device comprising:
 - a) a container defining a chamber therein and having an inlet and an outlet in fluid communication with said chamber;
 - b) a filter mounted in said chamber between said inlet and said outlet; and
 - c) a sensor mounted in said chamber, said sensor operative to exhibit a change in a measurable property thereof upon exposure to changes in said chamber due to microbial growth.
2. The device of Claim 1 wherein said filter is a microporous filter.
3. The device of Claim 1 wherein said filter is a radial flow filter.
4. The device of Claim 1 wherein said sensor is responsive to at least one of a change in pH and the presence of CO₂.
5. The device of Claim 1 wherein said sensor is operative to change color in response to at least one of a change in pH and the presence of CO₂ in said chamber.
6. The device of Claim 1 wherein said sensor is secured to an interior surface of said container.
7. The device of Claim 6 wherein said sensor is bonded to said interior surface of said container.

8. The device of Claim 1 wherein said container has a transparent section and changes in said measurable property of said sensor are detectable through said transparent section.

9. The device of Claim 1 wherein said container is formed of a plastic.

10. The device of Claim 1 wherein said sensor and said filter are disposed at opposed ends of said chamber.

11. The device of Claim 1 wherein said container includes a container body and a removable end cap.

12. The device of Claim 11 including an O-ring seal between said container body and said end cap.

13. The device of Claim 11 wherein said inlet and said outlet are formed in said end cap.

14. An integrated filtration and detection device for collecting and detecting the growth of microorganisms in a specimen, said device comprising:

a) a container defining a chamber therein and including:
an inlet and an outlet in fluid communication with said chamber; and

a transparent section;

b) a microporous filter mounted in said chamber between said inlet and said outlet; and

c) a sensor mounted in said chamber, said sensor operative to change color in response to at least one of a change in pH and the presence of CO₂ in said chamber due to microbial growth, wherein changes in the color of said sensor are detectable through said transparent section.

15. The device of Claim 14 wherein said filter is a radial flow filter.

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16. The device of Claim 14 wherein said sensor is secured to an interior surface of said container.

17. The device of Claim 14 wherein said chamber has a volume of between about 10 milliliters and 1 liter.

18. The device of Claim 14 wherein said container is formed of a plastic.

19. The device of Claim 14 wherein said sensor and said filter are disposed at opposed ends of said chamber.

20. The device of Claim 14 wherein said container includes a container body and a removable end cap, said inlet and said outlet are formed in said end cap, said device including an O-ring seal between said container body and said end cap.

21. A system for detecting the growth of specimen in a specimen, said system comprising:

a) an integrated filtration and detection device comprising:
a container defining a chamber therein and having an inlet
and an outlet in fluid communication with said chamber;
a filter mounted in said chamber between said inlet and said
outlet; and

a sensor mounted in said chamber, said sensor operative to
exhibit a change in a measurable property thereof upon exposure to
changes in said chamber due to microbial growth; and

b) a measuring apparatus operable to detect the measurable
property of said sensor.

22. A method for collecting and detecting the growth of
microorganisms in a specimen, said method comprising the steps of:

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- a) providing an integrated filtration and detection device including:
 - a container defining a chamber therein and having an inlet and an outlet in fluid communication with the chamber;
 - a filter mounted in the chamber between said inlet and the outlet; and
 - a sensor mounted in the chamber, the sensor operative to exhibit a change in a measurable property thereof upon exposure to changes in the chamber due to microbial growth;
- b) passing the specimen into the chamber through the inlet, through the filter and out of the chamber through the outlet to collect the microorganisms on the filter; and thereafter
- c) detecting the measurable property of the sensor.

23. The method of Claim 22 including the step of introducing a culturing medium into the chamber following said step of passing the specimen.

24. The method of Claim 23 further including the step of passing a wash fluid into the chamber through the inlet, through the filter and out of the chamber through the outlet between said steps of passing the specimen and introducing a culturing medium into the chamber.

25. The method of Claim 22 including the step of placing the device in a slot of a measuring apparatus, the measuring apparatus being operable to detect the measurable property of the sensor.

26. The method of Claim 25 including the step of automatically and electronically evaluating the sensor using the measuring apparatus.

27. The method of Claim 22 including the step of incubating the microorganisms in the chamber.

28. The method of Claim 22 wherein said sensor and said filter are retained in said chamber during and between said steps of passing the specimen and detecting the measurable property of the sensor.